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DN

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TI

Hormone-sensitive lipase - New roles for an old enzyme.

AU

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SO

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DT

Article  
General Review; (Literature Review)

LA

English

ED

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AB

Although described initially as an intracellular adipocyte-specific triacylglycerol lipase. it is now clear that HSL (hormone-sensitive lipase) is expressed in Multiple tissues and plays a number of roles in lipid metabolism. including that of a neutral cholesteryl ester hydrolase. The major isoform is a single polypeptide with a molecular mass of approx. 84 kDa and which comprises three major domains: a catalytic domain. a regulatory domain encoding several phosphorylation sites and an N-terminal domain involved in protein-protein and protein-lipid interactions. The activity of HSL is regulated acutely by several mechanisms, including reversible phosphorylation by a number of different protein kinases, translocation to different sites within the cell and interaction with a number of proteins, some of which may serve to direct the inhibitory products of HSL away from the protein. It is also apparent from work with HSL null mice that more than one enzyme species may be classified as a hormone-sensitive lipase. The possible presence of HSL in macrophages remains controversial, and the role of the protein in pancreatic beta-cells has yet to be fully elucidated. Altered expression of HSL in different cell types may be associated with a number of pathological states, including obesity, atherosclerosis and Type II diabetes.

CC

Cytology - General 02502  
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Biochemistry studies - Sterols and steroids 10067  
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Endocrine - General 17002  
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IT

Major Concepts  
Cell Biology; Endocrine System (Chemical Coordination and Homeostasis);  
Enzymology (Biochemistry and Molecular Biophysics); Metabolism

IT

Parts, Structures, & Systems of Organisms  
beta-cell: endocrine system; macrophage: blood and lymphatics, immune system

IT

Chemicals & Biochemicals  
cholesterol: metabolism; hormone-sensitive lipase; perilipin;  
protein kinase [EC 2.7.1.37]

IT

Miscellaneous Descriptors

lipolysis; phosphorylation; protein-lipid interactions; protein-protein interactions

## ORGN

Classifier  
Muridae 86375  
Super Taxa  
Rodentia; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
mouse (common)  
Taxa Notes  
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals,  
Rodents, Vertebrates

## RN

57-88-5 (cholesterol)  
9001-62-1 (hormone-sensitive lipase)  
9026-43-1Q (protein kinase)  
80449-02-1Q (protein kinase)  
134549-83-0Q (protein kinase)  
372092-80-3Q (protein kinase)  
9026-43-1 (protein kinase)  
9026-43-1Q (EC 2.7.1.37)  
80449-02-1Q (EC 2.7.1.37)  
134549-83-0Q (EC 2.7.1.37)  
372092-80-3Q (EC 2.7.1.37)  
9026-43-1 (EC 2.7.1.37)